



University of Kentucky
UKnowledge

Agricultural Engineering Extension Updates

Biosystems and Agricultural Engineering

1989

Lead in Your Drinking Water

Joseph L. Taraba
University of Kentucky

Right click to open a feedback form in a new tab to let us know how this document benefits you.

Follow this and additional works at: https://uknowledge.uky.edu/aeu_reports



Part of the [Bioresource and Agricultural Engineering Commons](#)

Repository Citation

Taraba, Joseph L., "Lead in Your Drinking Water" (1989). *Agricultural Engineering Extension Updates*. 43.
https://uknowledge.uky.edu/aeu_reports/43

This Report is brought to you for free and open access by the Biosystems and Agricultural Engineering at UKnowledge. It has been accepted for inclusion in Agricultural Engineering Extension Updates by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.



Agricultural Engineering Update



Structures &
Environment



Soil & Water



Energy



Safety



Crop Processing



Power &
Machinery

AEU-39

LEAD IN YOUR DRINKING WATER

Joseph L. Taraba
Associate Extension Professor and
Extension Specialist for Agricultural Engineering

!!ATTENTION PRIVATE WATER SOURCE OWNERS!!

The U.S. Environmental Protection Agency (USEPA) recently imposed a regulation requiring public water suppliers to notify all their customers of the potential health effects of lead from household plumbing. The USEPA regulates public water supplies (with at least 15 service connections or servicing 25 individuals) but does not regulate private water supplies. The potential health hazard of lead is also present from household plumbing which is supplied water from a private water source.

Congress passed a law (1986 Safe Drinking Water Act Amendments) that banned the use of lead solder, pipe and brass metal faucets that have lead contents greater than 8%, in household plumbing. The Kentucky Plumbing Code has been revised to include the USEPA requirements but does not impose this plumbing code on farmsteads that are outside a city or town corporate limits. Prior to 1986, a farmstead connected to a public water system was required to meet the State plumbing code. The ban was imposed because these plumbing materials release invisible, tasteless traces of lead into the water they are exposed to. This is of more concern if the water is acidic (pH < 6.5), soft (< 60 mg hardness/L), the solder is relatively new (less than 5 years old), and/or the water stands in contact with lead solder, pipe or fixtures for more than a few hours. Private drinking water sources are frequently acidic, further, the water softening process may yield water that is too soft.

The USEPA sets the drinking water standards and the present lead standard is 50 ppb. There is a health concern if lead exceeds this value. New health information has indicated that a lower value is required based on present health standards and the USEPA is likely to lower the lead standard for drinking water to 20 or 10 ppb. Lead does not affect everyone equally. Young children, infants, and fetuses appear to be particularly vulnerable to lead poisoning. A dose of lead that would have little effect on an adult can have a big effect on a small body. Also, growing children will more rapidly absorb any lead they consume. A child's mental and physical development can be irreversibly stunted by over-exposure to lead. In infants, whose diet consists of liquids made with water -- such as baby formula -- lead in drinking water makes up an even greater proportion of total lead exposure (40 to 60 percent). Females are found to absorb more lead than males. Further individuals with dietary deficiencies are also more likely to absorb higher amounts of lead than those people with good nutrition.

WHAT CAN YOU DO TO REDUCE LEAD IN YOUR WATER?

Immediate Steps

The first step is to refrain from consuming water that has been in contact with your home's plumbing for more than six hours, such as overnight or during your work day. Before using water for drinking or cooking "flush" the cold water faucet by allowing the water to run until you can feel that the water has become as cold as it will get. You must do this for each drinking water faucet -- taking a shower will not flush your kitchen tap. Flushing is important because the longer water is exposed to lead pipes or lead solder, the greater the possible lead contamination. (The water that comes out after flushing will not have been in extended contact with lead pipes or solder.)

Once you have flushed a tap, you might fill one or more bottles with water and put them in the refrigerator for later use that day. (The water that was flushed -- usually one to two gallons -- can be used for non-consumption purposes such as washing dishes or clothes, it needn't be wasted.)

The second step is to never cook with or consume water from the hot-water tap. Hot water dissolves more lead more quickly than cold water. So, do not use water taken from the hot tap for cooking or drinking, and especially not for making baby formula. (If you need hot water, draw water from the cold tap and heat it on the stove.) Use only thoroughly flushed water from the cold tap for any consumption.

Other Actions

If you own a well or another water source, you can treat the water to make it less corrosive. Corrosion control devices for individual households include calcite filters and other devices. Calcite filters should be installed in the line between the water source and any lead service connections or lead-soldered pipes.

You can reduce the amount of lead in the tap water in your home. Point-of-use treatment devices such as reverse osmosis devices and distillation units are commercially available. These units may be either purchased or leased. However, they can be expensive, their effectiveness varies, and they must be maintained. Always check the device's capabilities and actual performance in reducing lead. Set up an effective and practical maintenance program to be sure the system is maintained as recommended by the manufacturer. This is the best way to be certain it is doing the job intended. Since these devices also soften water, they should only be installed at the faucet.³ Of course, attaching a single unit to the kitchen tap will not solve a problem at the tap in the bathroom.

Insure in writing, any plumber you hire to use only lead free materials for repairs or in newly installed plumbing. Tin-antimony solders are available for copper pipe.

The following devices are not designed to reduce lead:

Carbon filters, sand filters, and cartridge filters. These do filter out some water contaminants, but they do not remove lead and they do nothing to prevent corrosion.

While a water softener can reduce lead in the water entering your home, it can also contribute to the corrosiveness of the water and, thus, to the potential of lead contamination. In homes where lead is a problem, water softeners should not be connected to pipes leading to drinking-water taps.

[This publication has been partially adapted from USEPA Publication, "Lead and Your Drinking Water," April 1987.]